

The background of the slide is a grayscale image of water splashing, with droplets and spray visible against a light gray background. The text is centered and overlaid on this image.

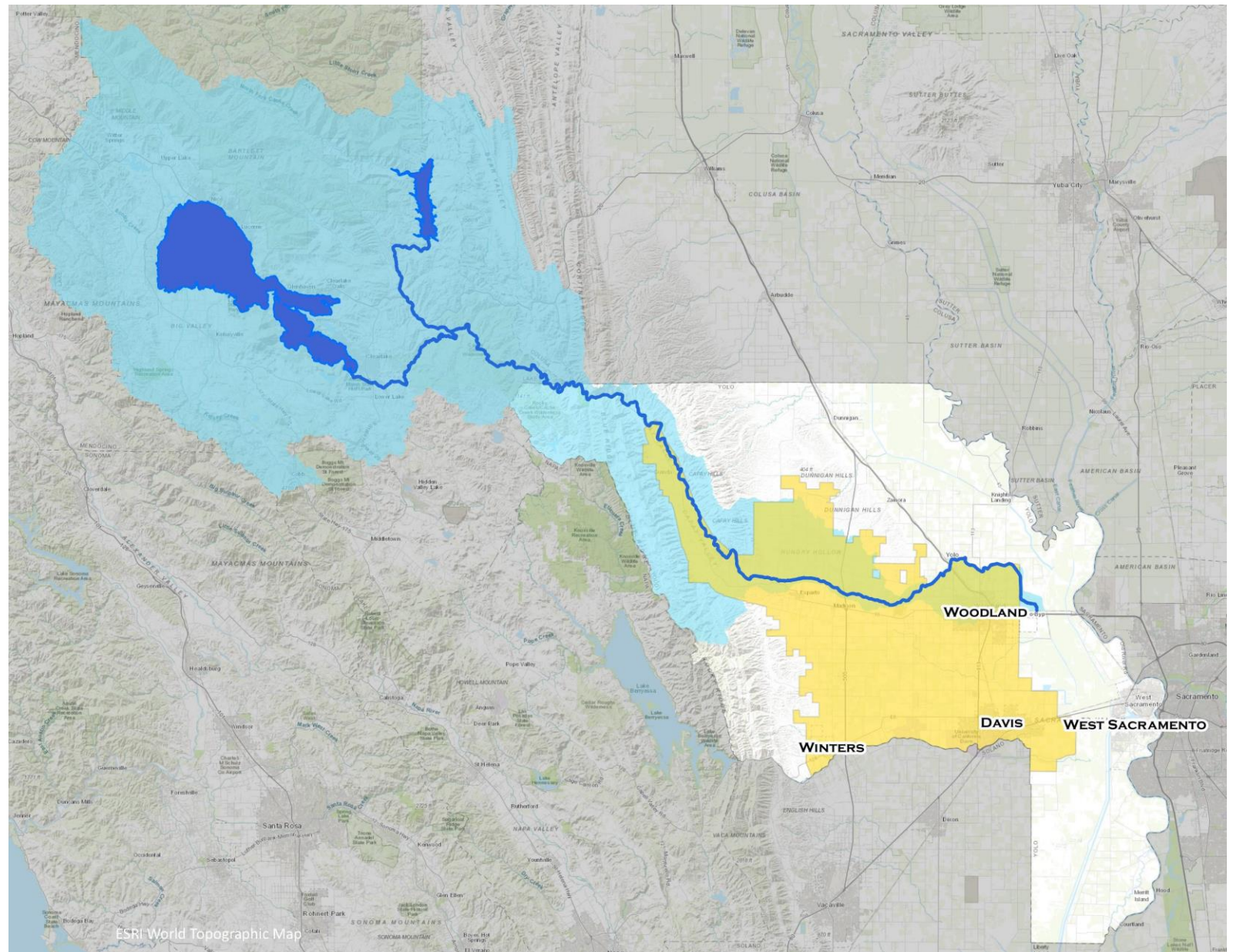
# Utilizing Excess Stormwater Flows for Groundwater Recharge

Kristin Sicke, P.E.

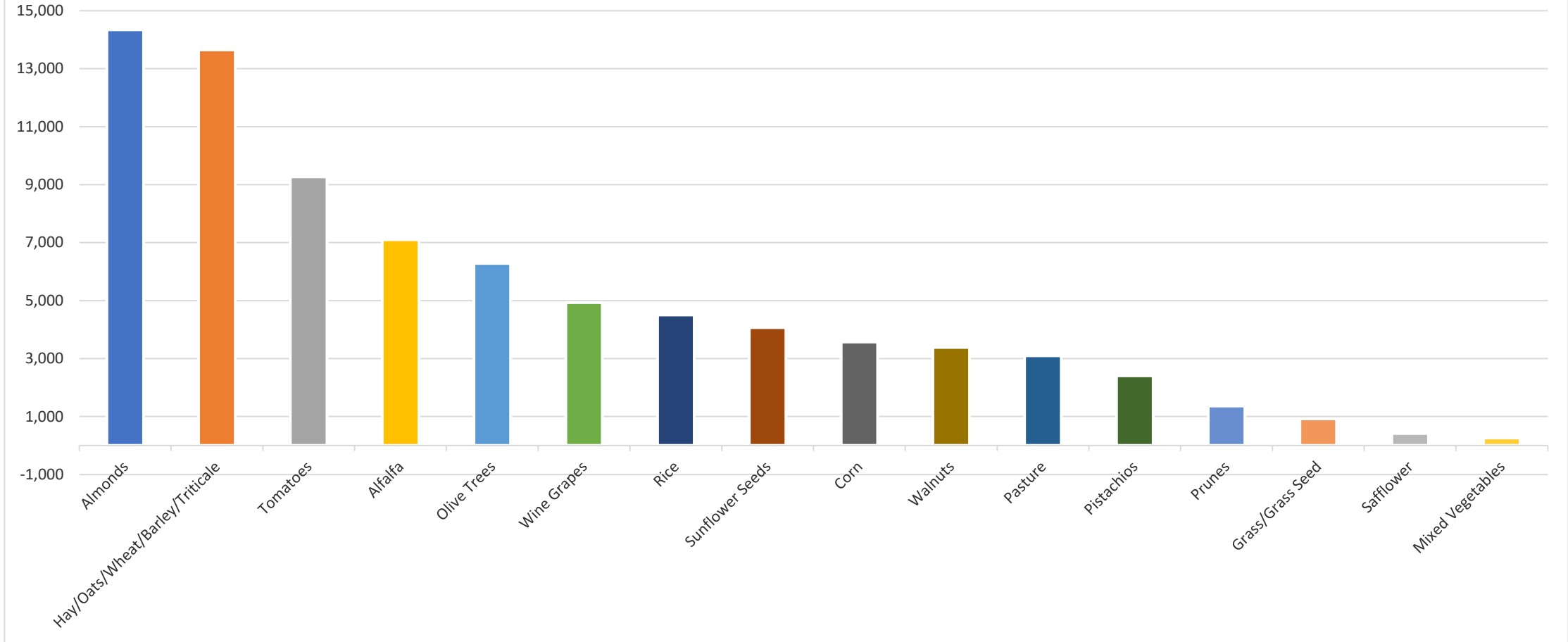
Yolo County Flood Control & Water Conservation District

General Manager

# Overview of Yolo County Flood Control & Water Conservation District



2023 Top 20+ Crops Signed Up



# 2023 Acreage Signups

- 82,000 acres signed up
- 3,400 organic acres
- 50 unique crop types



# Capay Diversion Dam







WINTERS

CAPAY

DAVIS

WOODLAND

80

113

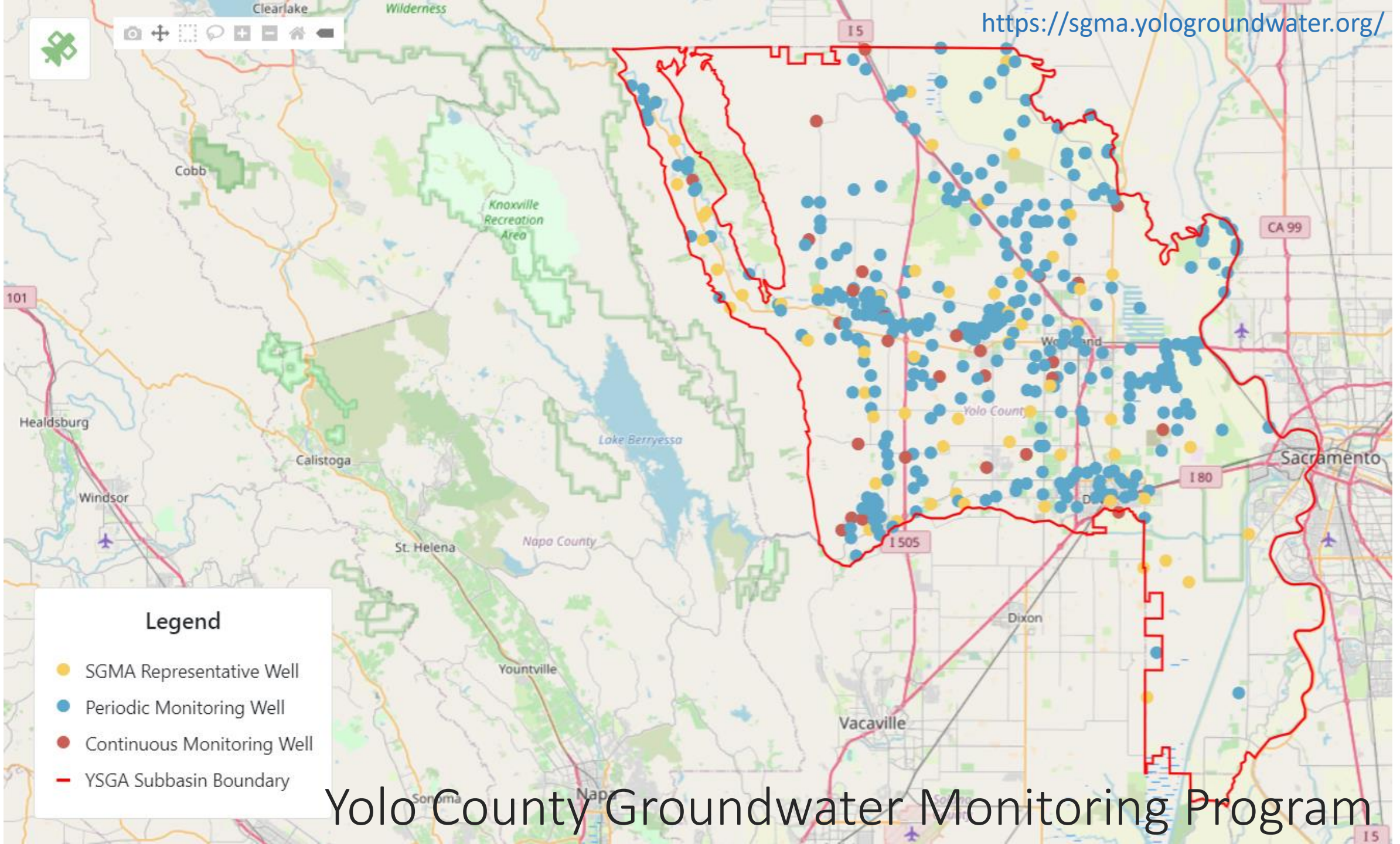
Roads © 2004 GDT, Inc.  
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### Legend

- SGMA Representative Well
- Periodic Monitoring Well
- Continuous Monitoring Well
- YSGA Subbasin Boundary

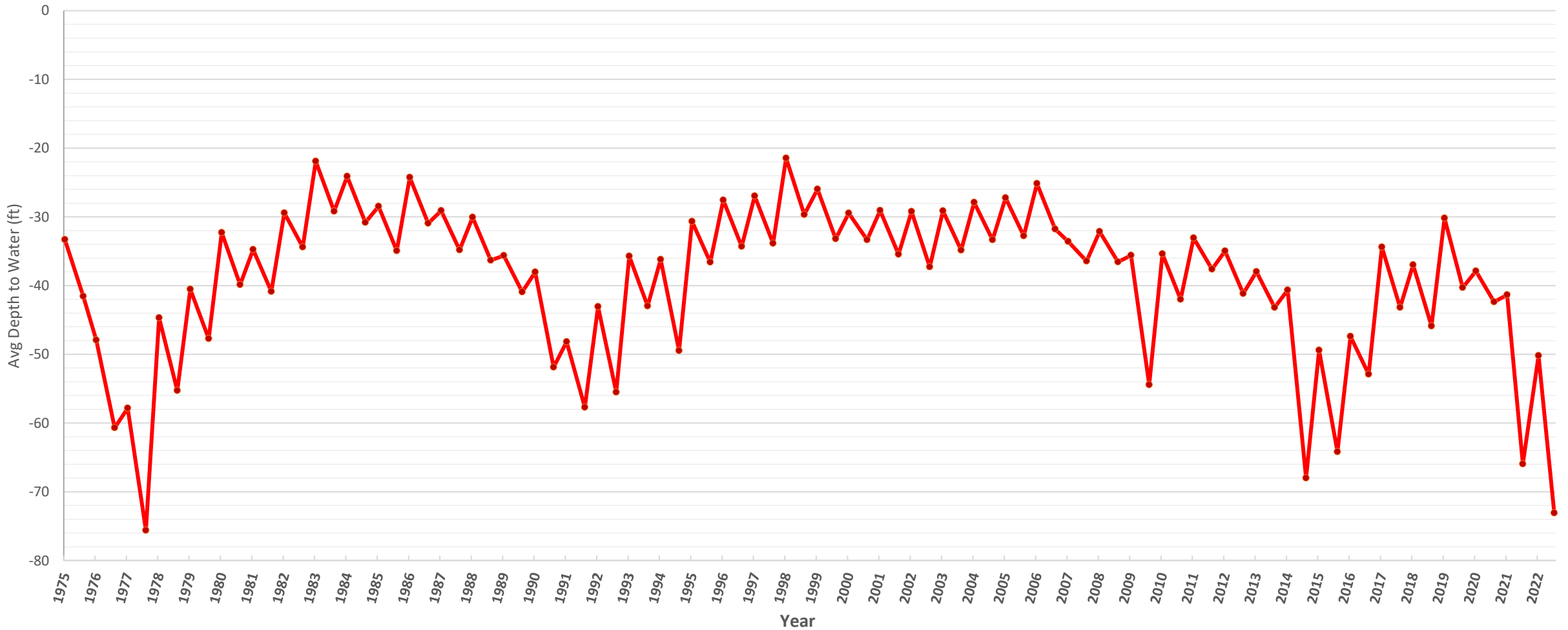
# Yolo County Groundwater Monitoring Program

# YFC&WCD Average Hydrograph Fall 2022

1977 Drawdown from Spring to Fall ~18 feet  
2014 Drawdown from Spring to Fall ~ 27 feet  
2021 Drawdown from Spring to Fall ~25 feet  
**2022 Drawdown from Spring to Fall ~23 feet**

## YFCWCD Average Groundwater

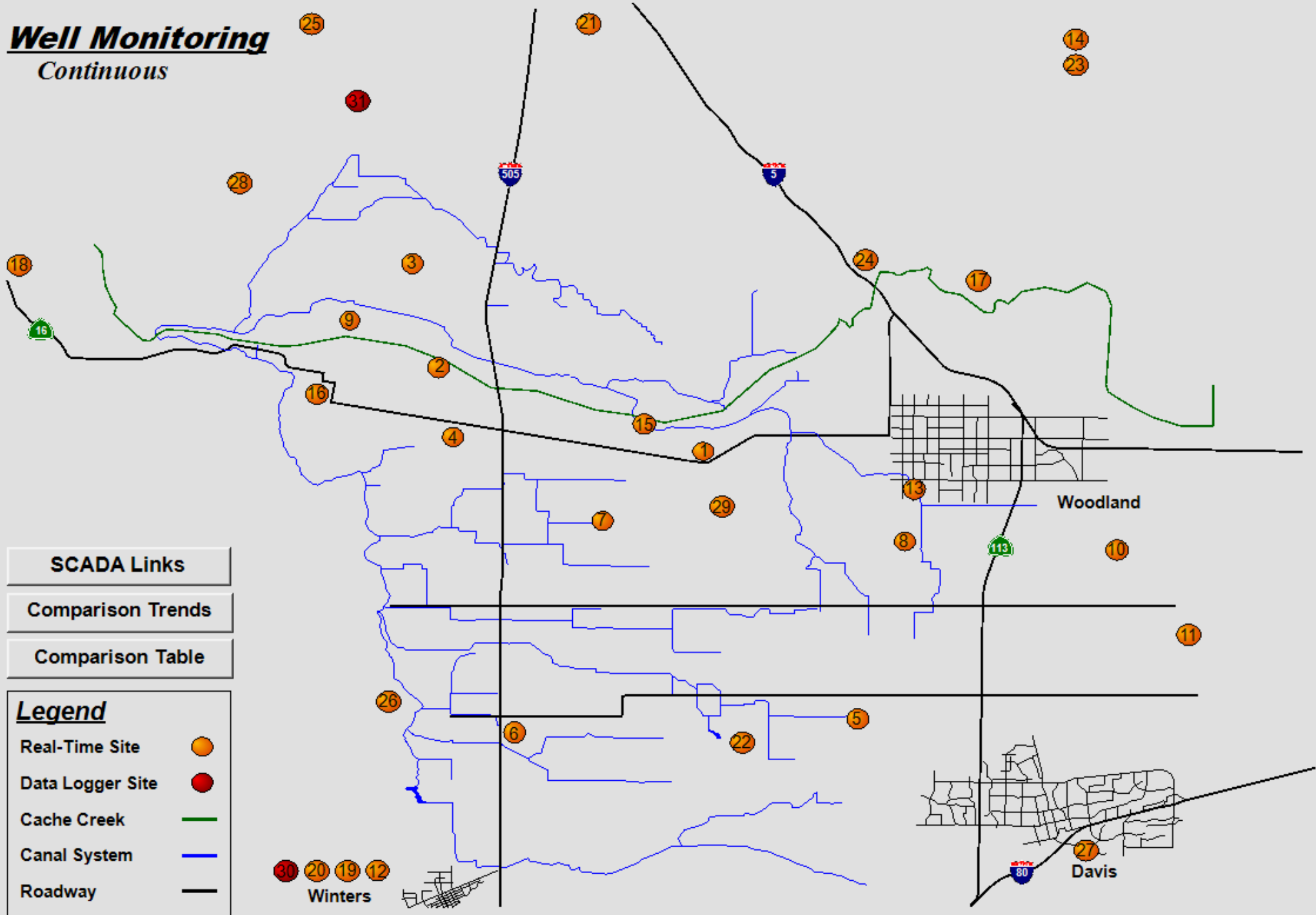
*Depth by Season (Fall 2022 is 123 wells)\*\**





# Well Monitoring

Continuous








SCADA Links

Comparison Trends

Comparison Table

## Legend

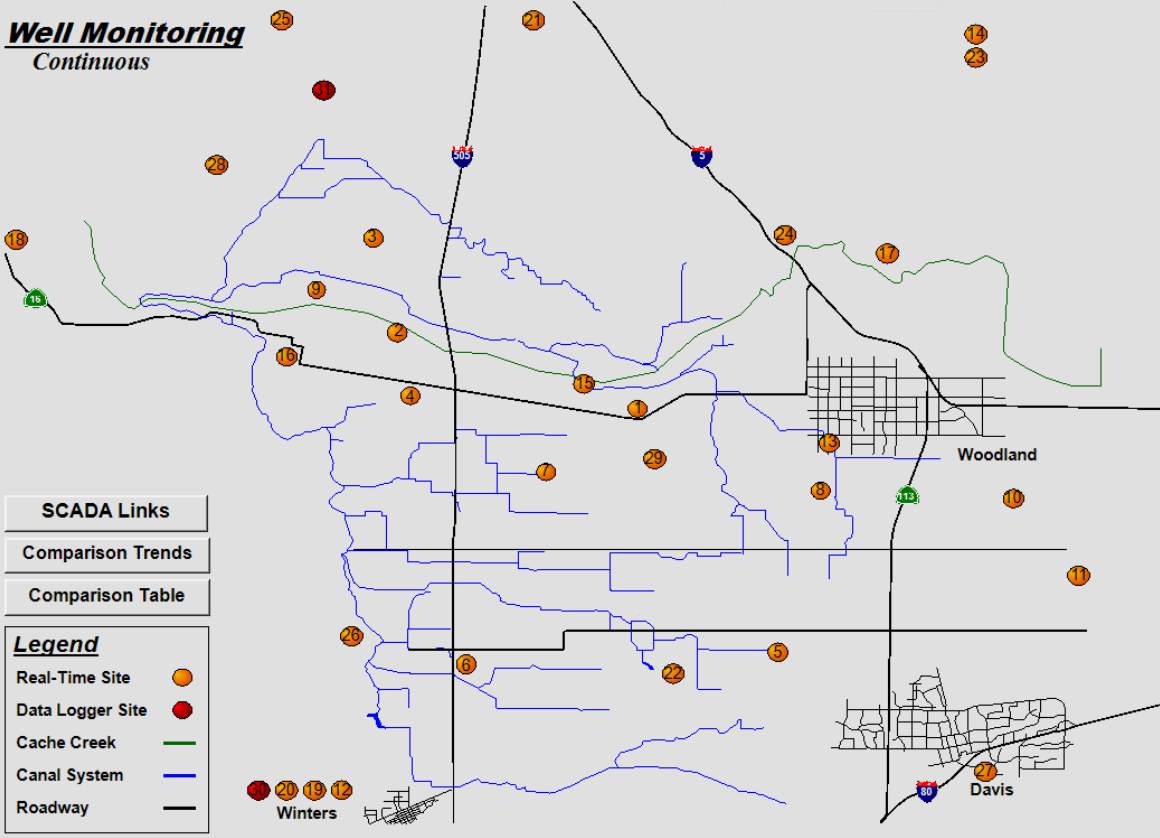
- Real-Time Site 
- Data Logger Site 
- Cache Creek 
- Canal System 
- Roadway 

     
Winters



# Well Monitoring

Continuous



- SCADA Links
- Comparison Trends
- Comparison Table

### Legend

- Real-Time Site ●
- Data Logger Site ●
- Cache Creek —
- Canal System —
- Roadway —


# Well Monitoring

Depth to Water Historical Comparison  
(Daily Average DTW in feet)

Well	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Δ 2022 - 2023	Δ 2015 - 2023	
1.	80.4	75.6	77.4	81.3	90.6	102.0	100.7	86.9	87.1	86.3	86.8	100.6	116.7	110.3	6.4	-8.2	
2.		26.2	29.3	30.6	35.1	40.0	39.5	23.8	29.9	24.0	30.5	33.2	39.5	34.7	4.8	5.3	
3.		39.7	39.3	40.8	49.4	61.8	56.4	36.8	39.8	36.3	40.7	46.8	62.8	57.1	5.7	4.8	
4.		22.3	25.2	36.4	30.9	41.3	36.5		26.8	20.7	29.1	47.9	40.1	34.1	6.0	7.2	
5.		13.8	21.2	18.3	29.8	33.9	37.4	17.3	28.3	12.6	21.5	32.0	38.3	25.3	12.9	8.5	
6.			34.9	37.9	43.7	58.1	52.9	27.1	36.9	21.5	41.1	59.2	58.2	42.0	16.2	16.1	
7.				21.2	21.2	32.4	31.7	15.4	20.3	14.7	21.1	32.2	37.2	27.4	9.7	5.0	
8.					49.5	67.1	63.5	42.9	41.6	35.1	40.3	60.6	68.0	52.0	16.0	15.1	
9.					47.6	58.5	53.3	34.9	39.9	34.1	41.4	51.2	55.6	50.4	5.2	8.1	
10.						40.9	26.3	10.6	11.0	9.0	23.0	37.2	62.0	15.0	47.1	25.9	
11.							15.2	11.1	5.4	7.7	5.4	10.1	15.3	8.0	10.5	7.1	
12.											108.1	106.2	124.0	131.7	1.3		
13.									52.0	44.9	52.2	81.5	84.0	60.9	23.1		
14.										7.9	10.7	10.9	10.2	9.0	1.2		
15s.										32.0	36.0	47.3	44.0	36.7	7.4		
15d.										98.1	107.3	179.8	176.0	147.3	28.7		
16.										25.9	36.1	40.1	49.3	41.4	7.9		
17.											20.8	28.0	31.6	25.4	6.3		
18.											34.6	47.6	40.9	28.0	12.9		
19.											165.1	176.2	188.5	190.9	-2.4		
20.											-- Working on a replacement well --						
21.											118.0	128.8	137.1	133.8	3.3		
22.													82.2	54.3	27.8		
23.													45.6	19.1	26.5		
24.													67.6	48.4	19.2		
25.														103.2			
26.														104.5			
27.														39.6			
28.														139.2			
29.														75.5			



# SCADA SYSTEM INVENTORY

- 72 Control Sites
    - Dam Flow Control
    - Canal Level and Flow
  - 90 Monitoring Sites
    - Canal Flow
    - Well Level
    - Diversion Pump Flowmeter
  - 7 Commercial Communication Towers
- 









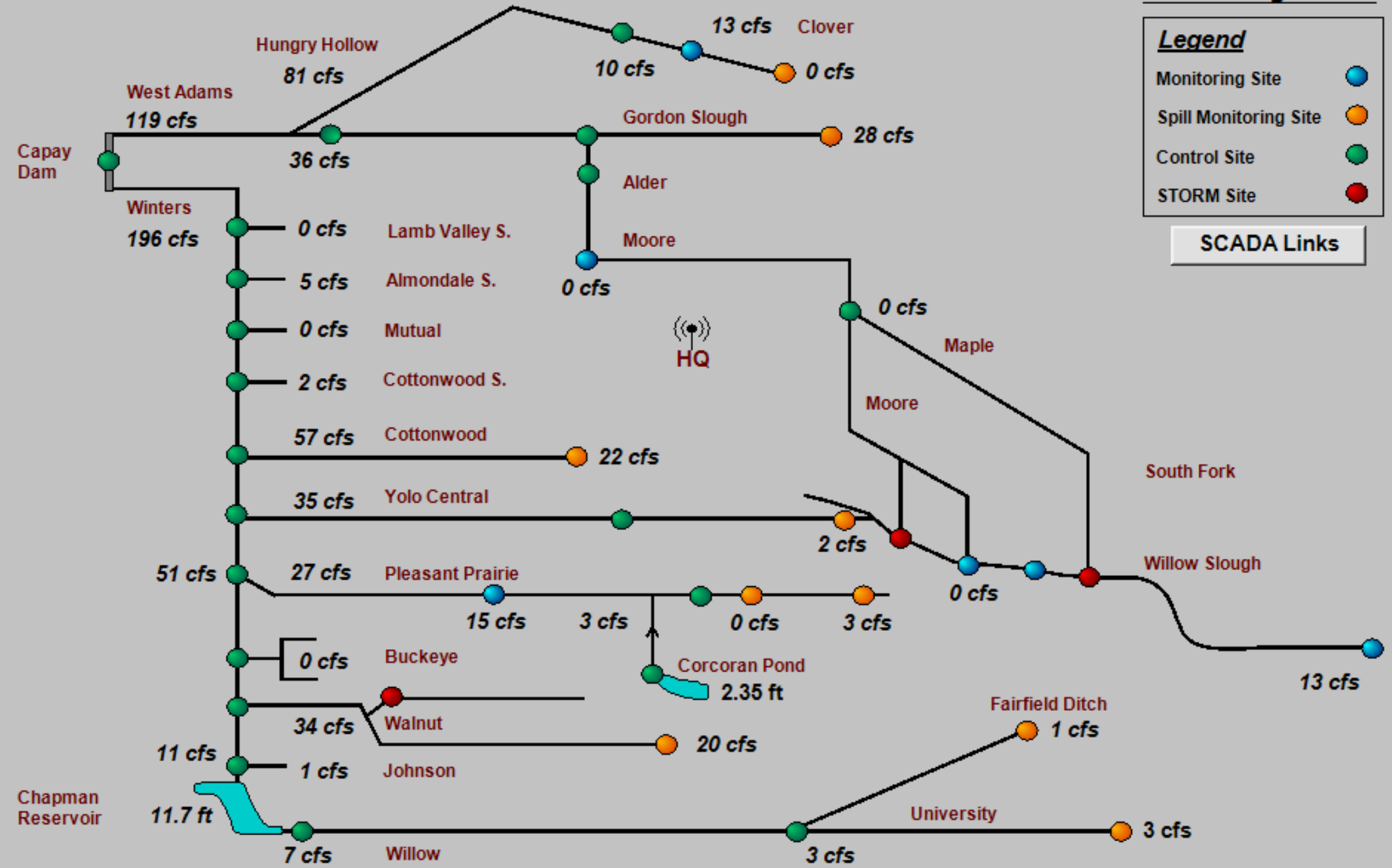


# Canal System

**Legend**

- Monitoring Site ●
- Spill Monitoring Site ●
- Control Site ●
- STORM Site ●

SCADA Links









# Temporary Permitting Process

- Executive Order B-36-15 and B-39-17
- Coordination with DWR, USBR, CDFW, and CVRB
- Delta must be in excess
- Flows at Yolo gauge > 50 cfs
- Diversion Season: 1/1-4/30

Year	Diversion Days	Stormwater Diversion for Groundwater Recharge (AF)
2016	39	11,128
2017	41	6,210
2018*	0	0
2019	30	3,745
2020*	0	0
2021*	0	0
2022*	0	0
2023	20	4,300

\* Limited rainfall and lack of excess storm flows.





## SEEKING FARMERS

HELP SAVE BIRDS BY FLOODING YOUR FIELDS AND GET PAID TO DO IT!

### BirdReturns-Delta Farmlands:

#### A Short-Term Flooding Opportunity Winter 2021-Spring 2022

The BirdReturns Program creates short-term wetland habitat that migratory birds desperately need by paying farmers to flood their fields. Since 2014, BirdReturns has generated over \$2 million in direct payments to farmers and created over 60,000 acres of seasonal wetland habitat. [Apply at BirdReturns.org!](http://BirdReturns.org)

#### WHO IS ELIGIBLE?

Farmers with row or field crops who can manage shallow flooding in the Sacramento-San Joaquin Delta Region (see map on page 2).

#### WHAT IS REQUIRED?

Manage crop stubble post-harvest, flood and hold water for a minimum of 21 days between **December 1, 2021** and **April 30, 2022**. Flooding periods start the first Monday of each month.

#### HOW AND WHEN TO APPLY?

Submit an easy 1-page online bid form at [BirdReturns.org](http://BirdReturns.org) with the field location, preferred timing and duration of flooding (21 days +), crop type of harvested fields, and your best price per flooded acre. **Application Period opens Monday, Oct. 11, 2021** and **closes Thursday, Oct. 21, 2021**, at [birdreturns.org](http://birdreturns.org).

#### WHY IS THIS PROGRAM IMPORTANT TO FARMERS?

- Millions of ducks, geese, swans, cranes and shorebirds depend on wetland habitat in the Central Valley. With post-harvest flooding, privately owned farmlands create surrogate wetland habitat that migratory birds now depend on as they make their long journey from Alaska to California and beyond, then back again in the spring.
- California's Sacramento-San Joaquin River Delta is an important place for waterbirds and the drought is dangerously reducing wetland habitat
- Shorebirds are in steep decline, and if they don't get a place to stop and rest during migration this year, population levels may drop even further
- Without our help, other waterbirds that overwinter in the Delta are also likely to suffer including the iconic Sandhill Crane

#### FOR MORE INFORMATION, GO TO [BIRDRETURNS.ORG](http://BIRDRETURNS.ORG) OR CONTACT US:

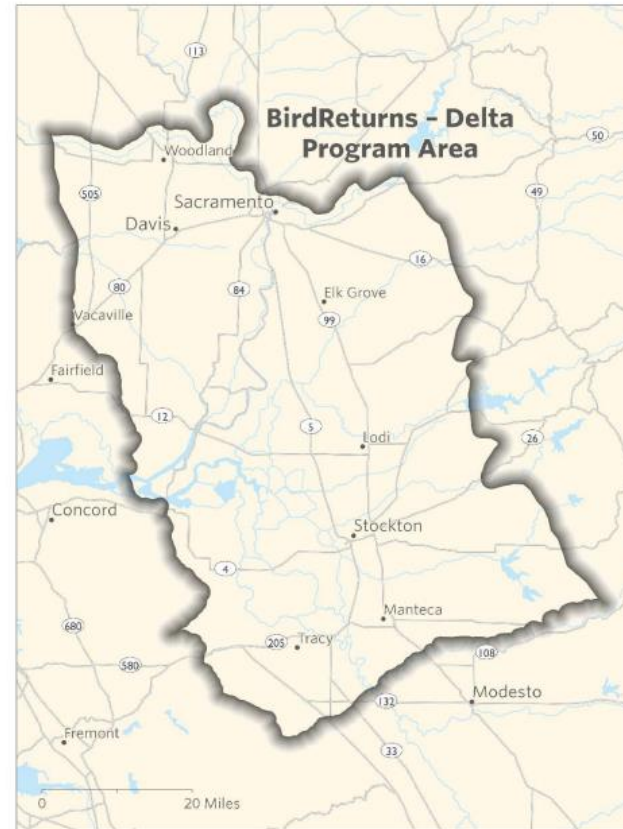
- Dawit Zeleke at 530-518-7244 [dzeleke@tnc.org](mailto:dzeleke@tnc.org)
- Julia Barfield at 916-449-2852 [jbarfield@tnc.org](mailto:jbarfield@tnc.org)



### DROUGHT RELIEF: A MAKE IT OR BREAK IT YEAR

#### Why is flooding even more critical this year?

Due to severe drought conditions, habitat for migrating birds will be in even shorter supply this year, reduced to less than a third of normal levels.



### MAKE BIRD HABITAT YOUR SECOND CROP

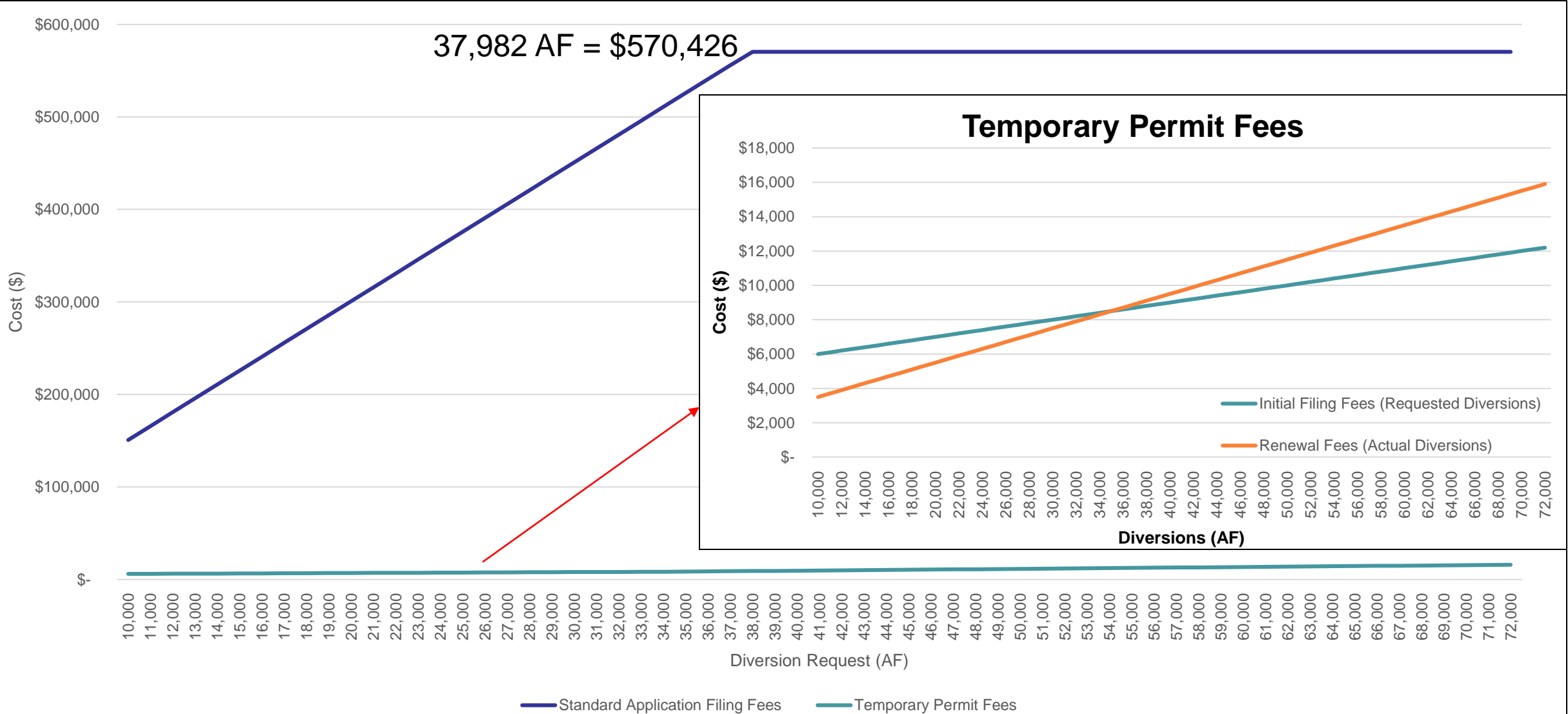
Flooding fields post-harvest helps decompose crop residue, and can help with salt management and offer pre-irrigation benefits if extended into the spring. In the Delta, flooding also helps reduce subsidence.

Make helping birds another part of your annual cropping cycle. Diversify your revenue with BirdReturns!

[Apply at BirdReturns.org](http://BirdReturns.org)



# Water Right Fees (as of 12/21)





# Lessons Learned

An aerial photograph of a river system. A large dam is visible in the lower right, with water flowing over it. The river winds through a landscape of green fields and some trees. The sky is clear and blue.

## POLICY-PROGRAM-PROJECT

Maintain earthen canal system

Create robust groundwater monitoring system

Modernize delivery system

- Know the landscape and hydrology – each watershed is unique
- Make outreach a component of the plan
- Optimize the system while balancing objectives
  - weather dependent - avoid diverting sediment
  - construction activities
  - debris build up
- Maximize flexibility to achieve sustainability

# Thank You

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## Contact Information:

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**(530) 662-0265**



YOLO COUNTY  
FLOOD CONTROL &  
WATER CONSERVATION  
DISTRICT